

MMS ENVIRONMENTAL STUDIES PROGRAM: ONGOING STUDIES

Region: Alaska

Planning Areas: Beaufort Sea, Chukchi Sea

Title: Arctic Fish Ecology Catalogue (AK-07-05)

MMS Information Needs to be Addressed: MMS needs organized fish ecology and behavioral information for NEPA analysis of fisheries resources, including Essential Fish Habitat and rare species. Study products will be used in post-sale NEPA analysis, review of EPs, DPPs and other reviews for post-sale and post-exploration MMS decision making and mitigation. Also, study results will be used in similar pre-lease analyses and documentation for later Chukchi Sea Lease Sale(s) in the *Outer Continental Shelf Oil and Gas Leasing Program 2007-2012*.

Total Cost: \$275,000

Period of Performance: FY 2008–2010

Conducting Organization: TBD

MMS Contact: [Chief, Alaska Environmental Studies Section](#)

Description:

Background A comprehensive synthesis of ecological and behavioral information concerning arctic fishes of Alaska is important to MMS fisheries scientists investigating arctic fish resources. MMS co-funded the most recent reference on Alaskan fishes. However, the latter is primarily a taxonomic key to Alaska fish species with summary distribution maps. A companion volume describing the ecology and behavior of important fish species has yet to be funded. Limited sub-arctic commercial and forage fish data are available in gray literature, e.g., the NMFS groundfish assessment documents for Gulf of Alaska, the Bering Sea and Aleutian Islands. Arctic fish ecological and behavioral information has not been synthesized; it is only available piecemeal from a wide range of peer-reviewed and gray literature.

The MMS share shown above is 50 percent of the estimated total joint funding needed. The MMS share shown above is 50 percent of the estimated total joint funding needed. Joint funding may be established via NOAA, NSSI, NPRB and/or other agencies.

Objectives

- Synthesize ecological and behavioral information on Arctic Alaska fish.
- Organize distribution, abundance, and habitat use information into a GIS format.
- Publish as a web-based catalogue and GIS mapping function for agencies and public use assuming participation of other agencies.

Methods

1. Conduct an intergovernmental/academic/industry coordination meeting to evaluate potential co-sponsorship before seeking final approval.

2. Conduct an extensive and thorough review of the peer-reviewed and gray literature concerning each fish species that may occur or expand into Arctic Alaska waters. Include freshwater, diadromous, and marine fish species occurring in the Beaufort and Chukchi Seas and possibly adjacent Arctic waters (eastern Russia and western Canada).
3. Synthesize ecological and behavioral information into a web-based catalogue.
 - In the first portion of the catalogue, include species-specific accounts of 1-3 pages in length per species. Pertinent information per each species include: species binomen; synonymy; common names; illustration; field marks; diagnostic features; geographical distribution (including GIS maps of documented occurrences and habitat areas by life history stage); biology (e.g. reproductive biology); behavior, ecology, and habitat (e.g. life history strategy, habitat types and areas, migration); size; interest to fisheries; literature; and remarks. Identify data deficiencies and areas for future research for each species.
 - In the second portion of the catalogue, include articles synthesizing ecological and behavioral information by topic. Include broad topics, but do not limit them to: environmental and organism constraints, foraging and feeding ecology, bioenergetics, use of time and space, growth, reproduction, predation and parasitism, competition and mutualism, dynamics of population abundance and production, life history strategies, fish assemblages, information needs, and areas for future research.
4. Publish and maintain as a web-based catalogue available to fisheries scientists and the greater public to use in research and education. The web-based catalogue is superior to a book because it may be updated with new information as it is published in the scientific literature, and is searchable using GIS functions.

Current Status:	In procurement
Final Report Due:	July 2011
Publications Completed:	None
Affiliated WWW Sites:	http://www.mms.gov/alaska/
Revised Date:	March 2008